



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/591,225	06/09/2000	David Robert Baldwin	TD-155	3467

29106 7590 11/25/2003

ROBERT GROOVER III
11330 VALLEYDALE DR.
DALLAS, TX 75230

EXAMINER

TUNG, KEE M

ART UNIT	PAPER NUMBER
----------	--------------

2676

DATE MAILED: 11/25/2003

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/591,225

Applicant(s)

BALDWIN, DAVID ROBERT

Examiner

Kee M Tung

Art Unit

2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. The amendment filed 9/3/03 has been considered in preparing this Office action.
2. Claim 6 is repeated from claim 5.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peddada et al (6,295,068 hereinafter "Peddada") in view of Porterfield (6,249,853).

As per claim 1, Peddada teaches a computer system (Fig. 5) comprising a graphics accelerator unit (20); a frame buffer (22); a texture memory 24), an AGP (26); a system logic chip set (16); a CPU (10); disk (18); a main memory (12) and a portion of system memory is used as an AGP memory (14) for storing texture data. However, Peddada fails to explicitly suggest or teach "manages page faulting of texture data invisibly to the host processor". Peddada teaches to use AGP DMA process (88 or DMA transfer engine in graphics accelerator 20, col. 6, lines 33-35 and col. 3, lines 28-37, i.e., further by definition of DMA is that memory access that does not involve the CPU and is frequently used for data transfer directly between memories) to transfer/copy texture data from AGP memory (14) to texture cache (24). It is noted that Peddada is not in virtual memory architecture. Porterfield teaches a virtual memory architecture in computer graphics system (Fig. 3) to map virtual addresses to physical

addresses in graphics applications (col. 14, lines 40-64 and col. 6, lines 1-33) comprising a graphics accelerator (160) which enables to access the main system memory directly in the execute model (col. 6, lines 55-67); a local frame buffer (162); a system logic (154) includes a memory management unit (col. 6, lines 22-24); a CPU (152) and a main memory (156). It would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the teachings of Porterfield into the system of Peddada because Peddada teaches in an alternate embodiment, the AGP memory consists of dynamically allocated areas of main system memory which the graphics accelerator can access quickly. The quick access comes from built-in chip set hardware call GART, which translates address so that the graphics controller sees a contiguous space in the main memory when in fact the pages are disjointed. GART is similar in function to paging hardware in the CPU chip. In the future, GART logic might not be required as the standard CPU page tables may be transparent to the driver or software. Therefore, it would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the teachings of Porterfield into Peddada as claimed in order to reduce the size, and thus the cost, of the local frame buffer and to improve system performance as taught by Porterfield (col. 6, lines 1-3). Therefore, at least claim 1 would have been obvious.

As per claim 2, the combined system further teaches "except when said graphics accelerator unit calls for data which has not recently been present in said main memory" (Peddada, Fig. 5, transfer from Disk to AGP memory 14, col. 5, lines 61-64 and Porterfield, col. 6, lines 3-8 and col. 16, lines 1-22).

As per claim 3, the combined system fails to explicitly suggest or teach a first and second memory management logics. But such memory management logics are inherent to Peddada based on the teachings of giving by Peddada. Specially, Peddada et al teaches, "the application initiates the process to initialize a texture in memory from a bitmap image stored on disk (18). The actual copy/transfer might be done by the driver (if hardware accelerated), or by DirectX or by the application" (Fig. 5 and col. 5, lines 59-67). Further, as shown in Figure 5, the texture data can be transfer/copy from disk to AGP memory or from AGP memory to texture cache 24. Therefore, it would have been obvious to one of ordinary skill in the art at the time the present invention was made to implement the teachings of "the application" and "the driver" of Peddada et al as the claimed first and second memory management logics because they both performs similar functions that virtualizing high level hierarchy memory into the next low level hierarchy memory (Fig. 5 and the specification). Therefore, at least claim 3 would have been obvious.

Claims 4-7 are similar in scope to claims 1-3, and thus are rejected under similar rationale (see detailed rejection in claim 1 above).

Response to Arguments


5. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kee M Tung whose telephone number is 703-305-9660. The examiner can normally be reached on Tuesday - Friday from 5:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 703-308-6829. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.



Kee M Tung
Primary Examiner
Art Unit 2676